Singapore Healthcare Management 2021

SingHealth Management Dashboard for COVID-19 External Operations

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INTRODUCTION

When incidences of COVID-19 cases climbed among Foreign Worker Dormitories (FWD) in early April 2020, SingHealth was tasked by the MOH-Joint Task Force (MOH-JTF) to support the national effort in

RESULTS

Components in this dashboard covered key indicators:

- 1. On-site demographic and occupancy rate
- 2. Inflow and outflow of site residents

managing operations across:

- 15 Foreign Workers Dormitories (FWD)
- 4 Swab Isolation Facilities (SIF)
- 5 Community Care Facilities (CCF)
- Mobile Swab Team Operations
- Mass Serology Operations

SingHealth swiftly deployed new facilities and processes including medical posts, swab operations and dedicated laboratories. Information of their setup, workload and test results were spontaneously reported in various frequencies and formats (e.g. inconsistent terminologies in lab results, use of Excel files, formSG, powerpoint slides). A dashboard to facilitate regular pulse checks and coordination was needed to maintain management oversight across all SingHealth involvements, and to right-size manpower deployment.

METHODOLOGY

- Clinic and swab workload 3.
- 4. Test results returned
- 5. Manpower deployed
- 6. Manpower deployment frequency

The target audience was senior management, area leads and key stakeholders.

The dashboard took two formats. The first provided daily **snapshots**, and was circulated daily (including weekends) to provide continuous up-to-date information for timely decisions and interventions. The second was a weekly dashboard with **longitudinal 14-day trends**, circulated every Monday to identify changing patterns.

CONFIDENTIAL 2. OPERATIONS DASHBOARD Dorm Overview (Workload & Swab Results) (reported as of 31/05/2020) Medical Post Workloa

The team took an **agile** approach that was suited for the uncertain circumstances and varying skillsets needed for this endeavour.

Inception

A multi-disciplinary team was urgently organised to produce a **prototype** dashboard. The priorities were to:

- 1. Establish the data pipeline
- 2. Outline the reports and their wireframes, and
- Test its ease-of-use by end users. 3.

Evolution

The dashboard was refreshed daily at 2pm with the most updated data of the previous day. The preferred medium was the Portable Document Format (PDF), since it could be accessed by personnel at external sites using any mobile device. Daily product delivery also meant frequent user feedback and product refinement. The team huddled before each refresh was circulated, to ensure data accuracy and discuss any matters arising. By end-April, users and developers built consensus that weekly refresh with drill-downs by dormitories

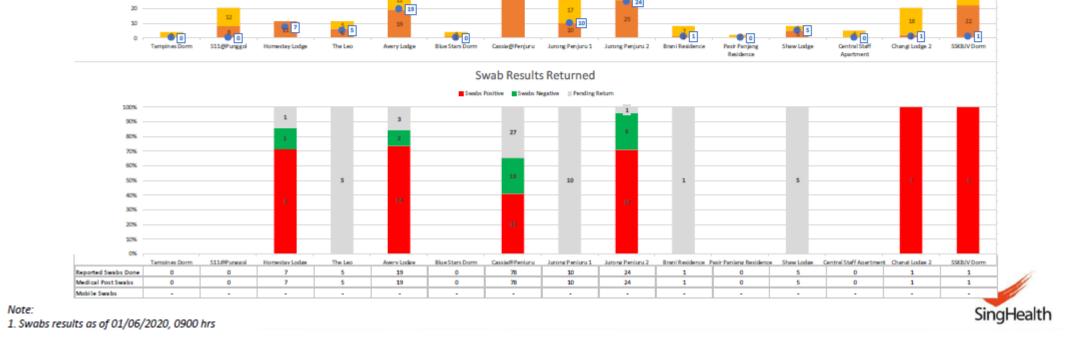


Figure 1: Excerpt of Daily Dashboard – Workload & Swab Results

		ns dashboard blogy Testing								
Institution	S/No	Serology Testing Site	Test Date	Lab	Phlebotomy Team	Total Tests Scheduled	Total Test Results	% Tests Scheduled with Results	Tests Positive	% Tests Positive
SGH	1	S11@Punggol	13-May	SGH	SKH		466		259	
SGH	2	S11@Punggol	14-May	SGH	SKH	2,500	483	100%	289	60%
SGH	3	S11@Punggol	15-May	SGH	SKH		497		335	00%
SGH	4	S11@Punggol	16-May	SGH	SKH		938		561	
SGH	5	S11@Punggol	18-May	SGH	SKH	200	247	100%	186	75%
SGH	6	S11@Punggol	20-May	SGH	SKH	600	623	100%	389	62%
SGH	7	S11@Punggol	21-May	SGH	SKH	600	620	100%	423	68%
SGH	8	S11@Punggol	22-May	SGH	SKH	600	718	100%	472	66%
SAF	9	Sungei Kadut FCD	22-May	SGH	SAF	-	8	-	1	13%
SGH	10	S11@Punggol	23-May	SGH	SKH	1,200	364	30%	225	62%
SGH	11	S11@Punggol	26-May	SGH	SGH	500	526	100%	315	60%
CGH	12	Changi Lodge 2	26-May	CGH	CGH	100	101	100%	73	2%
SAF	13	Senoko Loop	26-May	SGH	SAF	-	460	-	299	65%
SGH	14	S11@Punggol	27-May	SGH	SGH & SKH	500	611	100%	386	63%
ККН	15	Shaw Lodge	27-May	KKH	KKH	100	113	100%	44	39%
SGH	16	S11@Punggol	28-May	SGH	SGH & SKH	500	651	100%	403	62%
CGH	17	SSKBJV Dorm	28-May	CGH	CGH	100	100	100%	49	49%
SGH	18	S11@Punggol	29-May	SGH	SGH	1,000	630	63%	306	49%
CGH	19	HSJV Dorm	29-May	CGH	CGH	100	73	73%	11	15%
SAF	20	13 Senoko Way	29-May	SGH	SAF	253	252	100%	142	56%
SGH	21	The Leo	29-May	SKH	SKH	100	116	100%	11	9%
Total	-				-	8,953	8,597	96%	5,179	60%

Figure 2: Excerpt of Daily Dashboard – Mass Serology Testing



and 2-weeks trending was useful.

Maintenance

The dashboard was created in Microsoft Excel and Powerpoint. Tapping on widely-used softwares allowed dashboard maintenance by a larger pool of staff on shorter rotations to prevent burnout. The dashboard was semi-automated: Staff gathered and fact-check data, while macros and templates with dynamic formulas and charts automated data processing and visualisation.

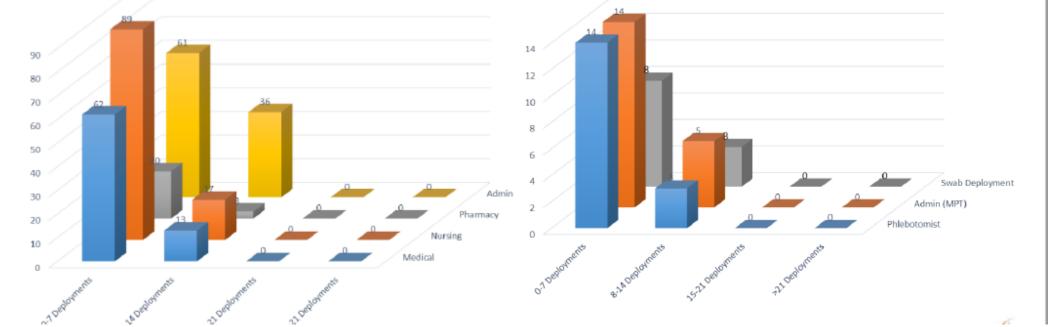


Figure 3: Excerpt of Weekly Dashboard - Staff Deployment Frequency

CONCLUSION

Creation and circulation of the daily and weekly dashboards enabled oversight, planning and active intervention when required. In addition, the tracking of deployment across professional groups allowed for appropriate deployment protocol that is streamlined and provides visibility to prevent burnout.